

Abstract of the Disclosure

An invention extending functionality and applications of traditional music keyboards. Individual musical keyboard keys may have individual key displacement sensors measuring key travel. Individual keys may further include surface sensors measuring two additional parameters, creating three independent continuous parameters essential for controlled rendering of vowel sounds and orchestral timbre spaces. Surface sensors may comprise pressure sensor arrays, which, via geometric image-processing, may produce five to six readily controlled independent parameters per key, useful in controlling expressive soloing and long-duration background sounds. Per-key pressure sensor arrays may comprise mass-produced modular components including intelligent distributed image processing to simplify manufacturing and substantially reduce cost. Synthesized tactile feedback may render variable keyboard actions or create ‘multi-level’ key travel functionality. Miniature keyboards may be provided to idle fingers on other musical instruments. Specialized configurations permit keys of two or more keyboards to be played simultaneously with different fingers of the same hand. Outgoing MIDI signals may also be provided.